CURRICULUM VITAE

Name: Yamini Dalal, Ph.D.

Researcher ID: F-3015-2017

ORCID: 0000-0002-7655-6182

Research Interests: Chromosome Biology, Cancer Biology, Epigenetics, Evolutionary Biology, Nanotechnology

Education:

1995	B.Sc. Biochemistry and Life Sciences, St. Xavier's College, Mumbai, India
2003	Ph.D. Biological Sciences, Purdue University, W. Lafayette, Indiana

Employment:

1998-2003	Graduate RA/TA, Biological Sciences, Purdue University, W. Lafayette, IN
2003-2007	Post-doctoral Fellow, Fred Hutch Cancer Res. Center, Seattle, WA
2007-2008	Visiting Guest Professor, Western Washington University, Bellingham, WA
2007-2008	Adjunct Research Associate, Fred Hutchinson Cancer Research Center, Seattle, WA
2008-Current	Group Director/Sr. Investigator, National Cancer Institute, NIH, Bethesda, MD
2012-Current	Affiliate Professor, Biological Sciences, University of Maryland, College Park, MD
2017	Sabbatical Guest Professor, Ludwig Maximilian Universität, Munich, Germany

Bibliography

1. Arnold Stein and **Yamini Dalal**. Conservation of Sequence and Structure Flanking the Mouse and Human b-globin Loci: the b-globin Genes Are Embedded Within an Array of Odorant Receptor Genes. *Chemtracts Biochemistry and Molecular Biology*, 12, 945, 1999.
2. Arnold Stein, **Yamini Dalal** and TJ Fleury. Circle ligation of in vitro assembled chromatin indicates a highly flexible structure, *Nucleic Acids Research*, 30: 5103-5107, 2002.
3. Alfred Cioffi, **Yamini Dalal** and Arnold Stein. DNA sequence alterations affect nucleosome array formation of the chicken ovalbumin gene, *Biochemistry*, 43: 6709-6714, 2004.
4. **Yamini Dalal**, TJ Fleury, Alfred Cioffi, and Arnold Stein. Long-range Oscillations in a Periodic DNA Sequence Motif May Influence Nucleosome Array Formation, *Nucleic Acids Research*, 33: 934-945, 2005.
5. **Yamini Dalal**. Signals in DNA that influence chromatin structure in vivo and in vitro. Ph.D. Thesis Dissertation, Purdue University Press. 2003.
6. Steven Henikoff and **Yamini Dalal**. Centromeric Chromatin: what makes it unique? *Current Opinion in Genetics and Development*, 15 (2): 177-84, 2005.
7. Takehito Furuyama, **Yamini Dalal** and Steven Henikoff. Chaperone mediated assembly of centromeric chromatin in vitro, *PNAS*, 103: 6172–6177, 2006.
8. **Yamini Dalal**, Hongda Wang, Stuart Lindsay and Steven Henikoff. Tetrameric Structure of Centromeric nucleosomes in Interphase Drosophila Cells, *PLoS Biology* 5(8)e218, 2007.
9. **Yamini Dalal**, Takehito Furuyama, Danielle Vermaak and Steven Henikoff. Structure, Dynamics and Evolution of Centromeric Nucleosomes, *PNAS*, 104:15974-81, 2007.

10. Hongda Wang*, **Yamini Dalal***, Steven Henikoff and Stuart Lindsay Single Epitope Imaging of Native Chromatin. *Epigenetics & Chromatin* 1:10, 2008. (*co-corresponding and co-first authors).
11. Gayane Ambartsumyan, Rajbir K Gill, Sylvia Perez, D Conway, J Vincent, **Yamini Dalal** and Amander Clark *Human Molecular Genetics* 19: 3970-82, 2010.
12. Emilios K. Dimitriadis, Christian Weber, Rajbir Gill, Stephan Deikmann and **Yamini Dalal**. Tetrameric organization of vertebrate centromeric nucleosomes. *PNAS* 107: 20317-22, 2010.
13. Minh Bui M, Emilios K. Dimitridis, Christian Hoischen, Eunkyung An, Delphine Quenet, Sandy Giebe, Alexsandra Nita-Lazar, Stephan Diekmann, and **Yamini Dalal**. Structural transitions in the centromeric CENP-A nucleosome are accompanied by histone modifications *in vivo*. *Cell* 150:317-26, 2012.
14. Minh Bui, Marcin P. Walkiewicz, Emilios K. Dimitriadis and **Yamini Dalal**. The Shape-Shifting Nature of the CENP-A nucleosome. *Nucleus* 4 (1), 2013.
15. Marcin Walkiewicz, Emilios K. Dimitriadis and **Yamini Dalal**. CENP-A octamers do not confer a reduction in height by AFM. *Nature Struc. Mol. Bio.* 21:9-10, 2014.
16. Delphine Quenet and **Yamini Dalal**. A long non-coding RNA is required for CENP-A recruitment to human centromeres. *eLife* 3:e03254, 2014.
17. Rajbir K. Gill-Athwal, Marcin P. Walkiewicz, Songjoon Baek, Song Fu, Minh Bui, Jordi Camps, Thomas Reid, Mia Sung and **Yamini Dalal**. CENP-A nucleosomes occupy transcription factor hotspots and sub-telomeric sites in human cancer cells. *Epigenetics and Chromatin* 8:1-3, 2015
18. David Winogradoff, Haiqing Zhao, **Yamini Dalal*** and Garegin Papoian*. Shearing of the CENP-A dimerization interface mediates plasticity in the octameric centromeric nucleosomes. *Scientific Reports* 5: 17038, 2015.
19. Haiqing Zhao, David Winogradoff, Minh Bui, **Yamini Dalal*** and Garegin A. Papoian*. Promiscuous histone mis-assembly is actively prevented by chaperones. *Journal of American Chemical Society* JACS.6b05355, 2016, and cover art of the Oct 2016 issue.
20. Sung Kim, Rifka Vlijm, Jaco Torre, **Yamini Dalal*** and Cees Dekker*. CENP-A and H3 nucleosomes display a similar stability to force-mediated disassembly. *PLoS One* 11(11), 2016.
21. Rifka Vlijm, Sung Kim, Paul de Zwart, **Yamini Dalal*** and Cees Dekker*. The supercoiling state of DNA determines the handedness of both H3 and CENP-A nucleosomes. *Nanoscale* 9(5), 2017.
22. Minh Bui, Mary Pitman, Arthur Nuccio, Serene Roque, Paul Gregory Donlin-Asp, Aleksandra Nita-Lazar, Garegin A. Papoian, and **Yamini Dalal**. Internal modifications in the CENP-A nucleosome modulate centromeric dynamics. *Epigenetics and Chromatin* 10:17, 2017.
23. Jon Nye, David Sturgill, Rajbir Athwal, and **Yamini Dalal**. HJURP antagonizes CENP-A mislocalization driven by the H3.3 chaperones HIRA and DAXX. *PLoS One* 13(10), 2018.
24. Haiqing Zhao, David Winogradoff, **Yamini Dalal***, Garyk Papoian*. The Oligomerization Landscape of Histones. *Biophys. J* 116(10): 1845-1855, 2019.
25. Daniel Melters, Mary Pitman M, Tatini Rakshik, Emilios K Dimitriadis, Minh Bui, Garegin Papoian and **Yamini Dalal**. Intrinsic elasticity of nucleosomes is encoded by histone variants and calibrated by their binding partners. *PNAS* 26;116(48):24066-24074, 2019.
26. Mary Pitman, **Yamini Dalal*** and Garegin Papoain*. Minimal Cylinder Analysis Reveals the Mechanical Properties of Oncogenic Nucleosomes. *Biophys. J* S0006-3495(20)30118-1, 2020.
27. Daniel Melters, Tatini Rakshit, Sergei Grigoryev, Minh Bui and **Yamini Dalal**. CENP-C modulates transcriptional accessibility of human centromeres. *Revision in review*, March 2020.
28. Daniel Melters, Minh Bui and Yamini Dalal. High speed AFM analysis of chromatin fibers reveals dynamic motion of nucleosomes. *Journal of Molecular Biology*, Special Issue, fall 2020.

Methods Chapters

29. Delphine Quènet, Emilios K. Dimitriadis and **Yamini Dalal**. Atomic Force Microscopy of Chromatin *AFM methods*, InTech Open Science, 2012.
30. Delphine Quenet, David Sturgill and **Yamini Dalal**. Identifying non-coding RNAs associated with histone dynamics in vivo. *Methods in Enzymology*. Special Issue: Epigenetics, Ed. Ronen Marmostein, 2016.
31. Marcin Walkiewicz, Minh Bui, Delphine Quenet and **Yamini Dalal**. Biophysical and biochemical analysis of histone variant structures in vivo. *Methods Molecular Biology*. Special Issue: Cell Cycle Regulation, 2014.
32. Art Nuccio[+], Minh Bui[+], **Yamini Dalal*** and Aleksandra Nita-Lazar*. Mass-spectrometry based methodology for identification of native histone variant modifications from mammalian tissues and solid tumors. *Methods in Enzymology*. Special Issue Proteomics Part B, 2017. *co-corresponding.
33. Tatini Rakshit, Emilios Dimitriadis, Daniel Melters and **Yamini Dalal**. Nano-indentation force spectroscopy of chromatin complexes. *Nucleus* (in press), 2020.

Reviews

34. **Yamini Dalal**. Epigenetic specification of centromere inheritance. *Biochemistry and Cell Biology* 87:273-282, 2009.
35. **Yamini Dalal** and Minh Bui. Down the Rabbit Hole of Centromere Assembly and Dynamics. *Current Opinion in Cell Biology* 22(3): 392-402, 2010.
36. Delphine Quènet, Marcin Walkiewicz and **Yamini Dalal**. Chromatin at the Intersection of Disease and Therapy, *ToxicoEpigenomics* Wiley Press, 2012 [Book Chapter].
37. Delphine Quenet and **Yamini Dalal**. The CENP-A nucleosome: a dynamic structure and role at the centromere. *Chromosome Research* 20:465-79, 2012.
38. Delphine Quenet, James McNally and **Yamini Dalal**. Through Thick and Thin: the conundrum of chromatin fiber folding in vivo. *EMBO Reports* 13:943-4, 2012. [Commentary].
39. **Yamini Dalal** and James McNally. Now you see it, now you don't: A biochemist's primer to advances in microscopy. *Physics of Life Reviews* (Elsevier) S1575: 00184-X, 2013. [Commentary].
40. Catherine Volle and **Yamini Dalal**. Histone variants: the tricksters of the chromatin world. *Current Opinions Genetics and Development* 25:8-14,138, 2014.
41. Daniel P Melters, Jonathan Nye, Haiqing Zhao and **Yamini Dalal**. Chromatin Dynamics In vivo: A game of musical chairs. *Genes (Basel)*, 7:751-756, 2015. Special Issue, Chromatin Dynamics, Ed. Jessica Tyler.
42. Jonathan Nye, Daniel Melters, and **Yamini Dalal**. The Art of War: Harnessing the Epigenome in the Battle against Cancer. *F1000 Reports*, 2018. Special Topics, Chromatin in Disease.
43. Brett Theeler, **Yamini Dalal**, et al. NCI-CONNECT: Comprehensive Oncology Network Evaluating Rare CNS Tumors- Histone Mutated Midline Glioma Workshop Proceedings. *NeuroOncology Advances*, 2020.
44. Mary Pitman, Daniel Melters, and **Yamini Dalal**. Job Opening for Nucleosome Mechanic: Flexibility Required. *Cells*, 2020. Special Issue, Chromatin Dynamics, Ed. Ali Hamiche.
45. Yamini Dalal and Anna Panchenko, Editors, Mesoscale Approaches to Chromatin Dynamics, Special Issue, *Journal of Molecular Biology*, fall 2020.
46. Ankita Saha and Yamini Dalal, The role of linker histone in disease (invited review), *Open Biology*, *Royal Society of Medicine, UK*, Ed. David Glover, spring 2021

[*co-corresponding]

Highlights of Dalal Lab Research in the Press:

Sign of Four. *Science, Editor's Choice*, 2007

Supercoil Me Up. *Journal of Cell Biology*, 2009

The Split Personality of CENP-A nucleosomes. *Cell*, 2012

Nucleosomal Dynamics at Centromeres. *Nature Rev Mol Cell Bio* 2012; *Nature Rev Gen,* 2012

Centromere chromatin: a loose grip on the nucleosome? *Nature Struct Mol Bio*, 2014

A long noncoding RNA helps cells divide. *Science, Editor's Choice*, 2014

Promiscuous assembly of CENP-A is prevented by its chaperone, *JACS, Cover Art*, 2016

Profiles in Biophysics, Yamini Dalal. *Biophys J,* 2020

Service

Societies:

Faculty of 1000; Biophysical Society

Editorial Boards:

Chromosoma; Biophysical Journal (Cell Press); Epigenetics and Chromatin (Springer Nature Press); Journal of Molecular Biology (Elsevier Press); Nucleus; F1000 Research; Nucleic Acids Research Cancer (Associate Editor, Oxford University Press); Public Library of Science One (PLoS One) 2010-2020; Scientific Reports (Springer Nature Press) 2015-2020.

Manuscript Reviewer (2001-2020):

Biochemie, BBA, Cell, Cells, Cell Reports, Chromosoma, Chromosome Research, Current Biology, Dev Cell, eLife, EMBO, EMBO Reports, Epigenetics and Chromatin, Genes, Genetics, Frontiers in Genetics, Genome, Genome Biology, Genome Research, Life Science Alliance, JCB, JBC, JMB, Mol. Cell, MBoC, MCB, Nature, Nat. Struct. Mol. Bio., Nat. Comm., NAR, PLoS One, PloS Genetics, PLoS Biology, PNAS, Science, Science Advances, Scientific Reports.

Reviewer for research funding agencies (2009-2020):

NSF Genomes, Genes, Genetics Molecular Biology Special Emphasis
NIH, AARA Challenge Grants
Netherlands Organization for Scientific Research Physics Panel (NWO)
French National Research Agency (ANR, CNSR)
NIH Director's Challenge grants
BBSRC Cancer Research Grants, United Kingdom
Wellcome Trust UK/DBT India Alliance Grants, UK-India
Czech Science Foundation (CSF), Czech Republic
VNCI- DBT India Alliance Grants, India
Deutsche Forschungsgemeinschaft (DFG), Germany
French National Research Agency ANR, France
Wellcome Trust UK-DBT DBT Alliance grants, United Kingdom
French National Cancer Institute (INCa), France

European Research Council Wellcome Trust/DBT India Alliance Grants
UNCF-Merck Foundation Panelist (Web Panel)
IndoUS Brain Trust
NSF Epigenetic Inheritance MCB
World-Wide Cancer Research Foundation
Israel Science Foundation

Member on NIH Intramural Committees (2009-2020)
Steering Committee, Center for Excellence in Chromosome Biology, CCR/NCI 2014-2019
Cancer Advisory Board to the Director of the CCR/NCI 2012-2017
NIH Earl Stadtman Chrom. Biology Faculty Search Committee (Chair, 2019) 2010-current
NIH Laboratory of Cell and Molecular Biology Faculty Search Committee
NIH Johns Hopkins University Graduate Partnership Program Committee 2018-current
CCR Science Board, Advisory Committee to the Director, CCR/NCI 2019-current
CCR Grand Rounds Planning Committee, CCR/NCI 2018-current

Panelist on Extramural Study Sections (2010-2020)
Marsha Rivkin Ovarian Cancer Research Foundation, Seattle WA
NSF MCB/Physics and Engineering/Rules of Life/EFRI, Arlington VA
NSF Epigenetics and RNA Regulation/MCB, Arlington VA
NSF Epigenetics and RNA CAREER/MCB Arlington VA
NIH Molecular Genetics A, NIGMS, Washington DC 2012-2017

Funding and Recognition

Graduate TA/RA fellowships, Purdue University	1998-2001
Cryo-EM Structure Consortium Training Award Purdue University	2002
Howard Hughes Future Faculty Fellow, University of Washington	2007
NIH Intramural Research Program	2008-current
CCR Director's Research Highlights Award	2013
CCR Director's Technology Innovation Award (to lab)	2013
NCI-University of Maryland Graduate Cancer Technology Partnership (to lab)	2014-2019
LMU-Max Planck Center for Advanced Studies Sabbatical Fellow	2017
NCI-CCR Technology Transfer Award	2020
NCI-CCR Flex Technology Award	2020-2023
Schrodinger Institute Fellow, Mesoscale Studies of Chromatin, Vienna, Austria	2021

Invited Seminars and Conference Chairs (2015-2020):

NCI symposium on chromatin, DNA methylation, lncRNAs and disease (Organizer, Chair), April 2015
EMBO Dynamic Kinetochore Workshop, Copenhagen, May 2015
TU-Delft, Netherlands May 2015
Ludwig-Maximilian Universität, Munich, Germany, February 2016
Penn State University Medical Campus, Hershey PA, February 2016
Colorado State University, Ft. Collins CO, April 2016
Gordon Research Conference, Chromatin structure, May 2016, declined, time conflict
Gordon Research Conference, Centromeres and Kinetochores, July 2016
Evolving the Epigenetic Code Symposium, Co-Organizer, Speaker Fred Hutch Cancer Res. Center, Seattle, August 2016
Carnegie Institute, Baltimore MD, December 2016

LMU-Max Planck Center for Advanced Research, Munich, Germany, June 2017
University of Giessen/Philipp Marburg University, Marburg, Germany, June 2017
Institut Curie, Paris, France, July 2017
Francis Crick Institute, London, UK, July 2017
University of Heidelberg, Heidelberg, Germany July 2017
University of Illinois, Urbana-Champaign IL, November 2017
Purdue University, W. Lafayette IN, November 2017
Gordon Research Conference, Chromatin Structure, Maine, August 2018
Gordon Research Conference, Centromeres, Vermont, August 2018
NCI Connect Histone Mutated Glioblastoma Workshop (co-Chair), NIH, September 2018
NCI Grand Rounds Seminar, NIH, December 2018
Northwestern University School of Medicine, Chicago, IL, February 2019
Loyola University School of Medicine, Chicago, IL, February 2019
Gordon Research Conference, Chromosome Dynamics, Newry, ME, June 2019
Johns Hopkins University, Dept. of Biology, Baltimore MD, September 2019
Biophysics Annual Meeting, Mesoscale Modeling of Chromatin, Co-Chair, San Diego, CA February 2020
Catholic University, Washington DC April 2020 *postponed due to Covid
Laboratory of Genome Integrity, NIH April 2020 *postponed due to Covid
Gordon Research Conference, Centromeres, July 2020, declined, time conflict
Telluride Chromatin/Nucleosome Dynamics Symposium (virtual meeting), August 2020
Erwin Schrodinger Institute Chromatin Modeling Symposium, Vienna, Austria February 2021
Biophysical Society Annual Meeting, MGO subgroup, Virtual meeting, February 2021

Teaching and Mentoring:

1.	Graduate Teaching Assistant, Biological Sciences, Purdue University, IN	1998-2003
2.	HHMI Future Faculty Fellow, University of Washington, WA	2007
3.	Visiting Teaching Professor, Dept. of Biology, Western Washington University, WA	2007-2008
4.	10 postdoctoral fellows, 6 predoctoral fellows, and 7 summer interns	2008-current
5.	Mentor, Graduate Student Partnership Program, NIH	2009-2019
6.	Lecturer, NIH/FAES	2010-2011
7.	Guest Lecturer, Bio485 University of Maryland-College Park	2015-current